

Memorandum

TO: Performance Measures Technical Sub-Committee

FROM: John Crocker

DATE: January 9, 2008

SUBJECT: Regional Service Availability – Headways and Span of Service

This short report presents the availability of fixed route transit services within the metro Atlanta region during the late fall of 2007 and early winter of 2008 by focusing on two specific measures – Headways and Span of Service. This is compared to Headways and Span of Service presented earlier in 2007 to monitor any changes in service. The fixed route services are divided into four types – heavy rail, express bus, local bus and activity center since these routes have defined routes with (usually) some type of published headways and hours. Due to time constraints, efforts to refined local bus services into Semi-Express, Arterial / Major Road, Suburban Local, Feeder, and Small Bus are still ongoing and not complete at this time. The focus on these two standards is to complement some of the information presented in the SMARTRAQ report and the annual Metropolitan Atlanta Performance (MAP) report which highlight geographic coverage of the transit network through population and employment within walking distances of transit and overall vehicle service hours. Examination of headways and span of service allows an initial picture to be developed of the quality of the service that is being provided.

Services are described based upon the type of service being provided.

Local Bus

As of January 1, 2008, there were 148 local bus routes operating within the Atlanta region, twelve (12) routes operated by CCT, four (4) routes operated by C-TRAN, eight (8) routes operated by GCT, and the rest operated by MARTA.¹ Despite a significant service change at MARTA on December 8, 2007, there was no net change in local bus routes from October 2007. However, there was an increase in weekend service Table 1 shows the number of routes operating at the various Span of Service LOS as defined by the Transit Capacity and Quality of Service Manual – 2nd Edition and Figure 1 presents the Local Bus Span of Service LOS.

¹ Because of its loop nature, C-TRAN route 500 was classified as circulator routes.

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Table 1 – Local Bus Span of Service LOS

	Weekday Span of Service		Saturday Span of service		Sunday Span of service	
A – 19-24 hours, Night service	67	45.3%	39	26.4%	16	10.8%
B – 17-18 hours, Late Evening Service	43	29.1%	56	37.8%	59	39.9%
C – 14-16 hours, Early Evening Service	23	15.5%	28	18.9%	30	20.3%
D – 12-13 hours, Day time Service	10	6.8%	9	6.1%	6	4.1%
E – 4-11 Hours, Peak hours only or limited Mid-day	5	3.4%	0	0.0%	0	0.0%
F – 0-3 Hours, Limited Service	0	0.0%	0	0.0%	0	0.0%
Total Routes in Service	148	100.0%	132	89.2%	111	75%
No Service	0	0%	16	10.8%	37	25.0%



Figure 1 – Local Bus Span of Service LOS

Table 1 and Figure 1 show that most local bus routes in the region operate through at least the late evening of every weekday and Saturday, though a quarter of all local service is not available on Sunday. However, the overall trend as shown in Figures 2 show that weekend service is increasing with 75% of the local bus network in service on Sunday, up from just over 70% operating on Sundays in July.

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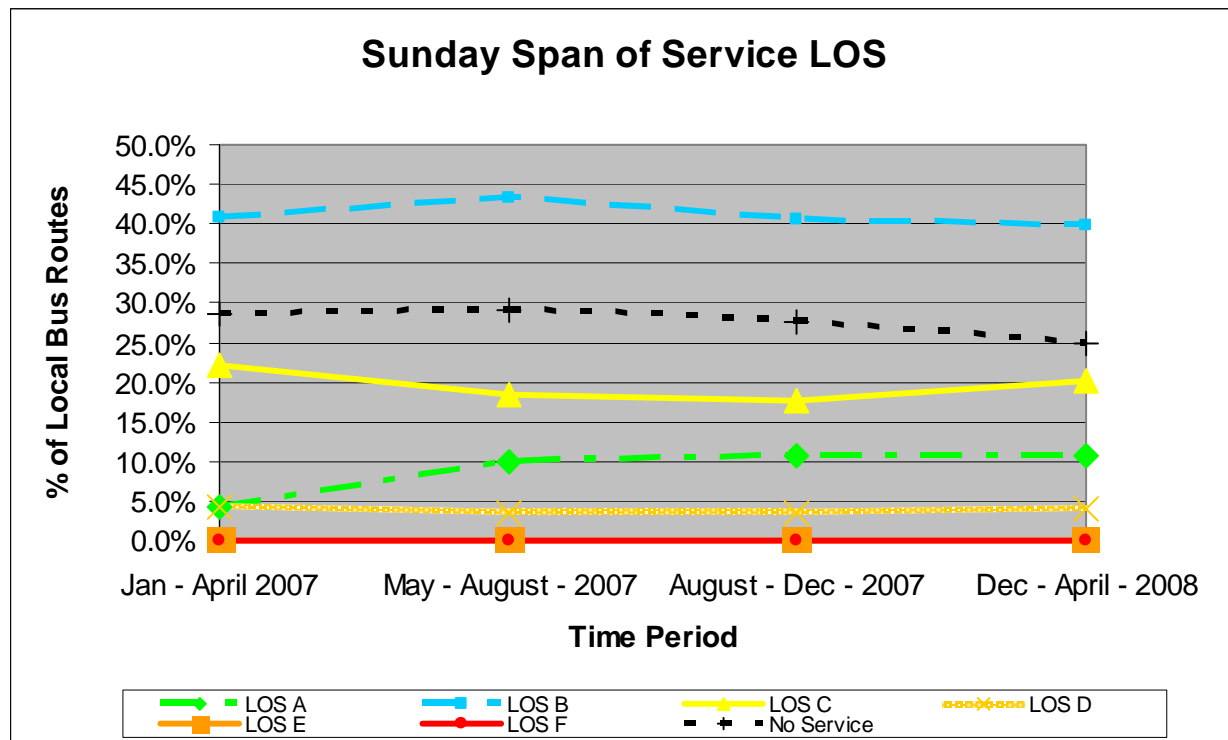


Figure 2 – Sunday Local Bus Span of Service LOS Over Time

In terms of the time of day that bus service is provided, Span of Service, our region is performing quite well. Table 2 presents the number of routes operating at the various LOS levels for headways and Figure 3 presents Local Bus Headway LOS.

Table 2 – Local Bus Headway LOS

	Weekday						Sat		Sun	
	Peak		Base		Evening		Sat Freq		Sun Freq	
A – <10 minutes	1	0.7%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
B – 10-14 minutes	5	3.4%	0	0.0%	0	0.0%	1	0.7%	1	0.7%
C – 15-20 minutes	45	30.4%	12	8.1%	5	3.4%	7	4.7%	4	2.7%
D – 21-30 minutes	60	40.5%	60	40.5%	53	35.8%	34	23.0%	32	21.6%
E – 31-60 minutes	36	24.3%	62	41.9%	67	45.3%	84	56.8%	69	46.6%
F - >60 minutes	1	0.7%	6	4.1%	3	2.0%	6	4.1%	5	3.4%
Total Routes in Service	148	100.0%	140	94.6%	128	86.5%	132	89.2%	111	75.0%
Routes not in Service	0	0.0%	8	5.4%	20	13.5%	16	10.8%	37	25.0%

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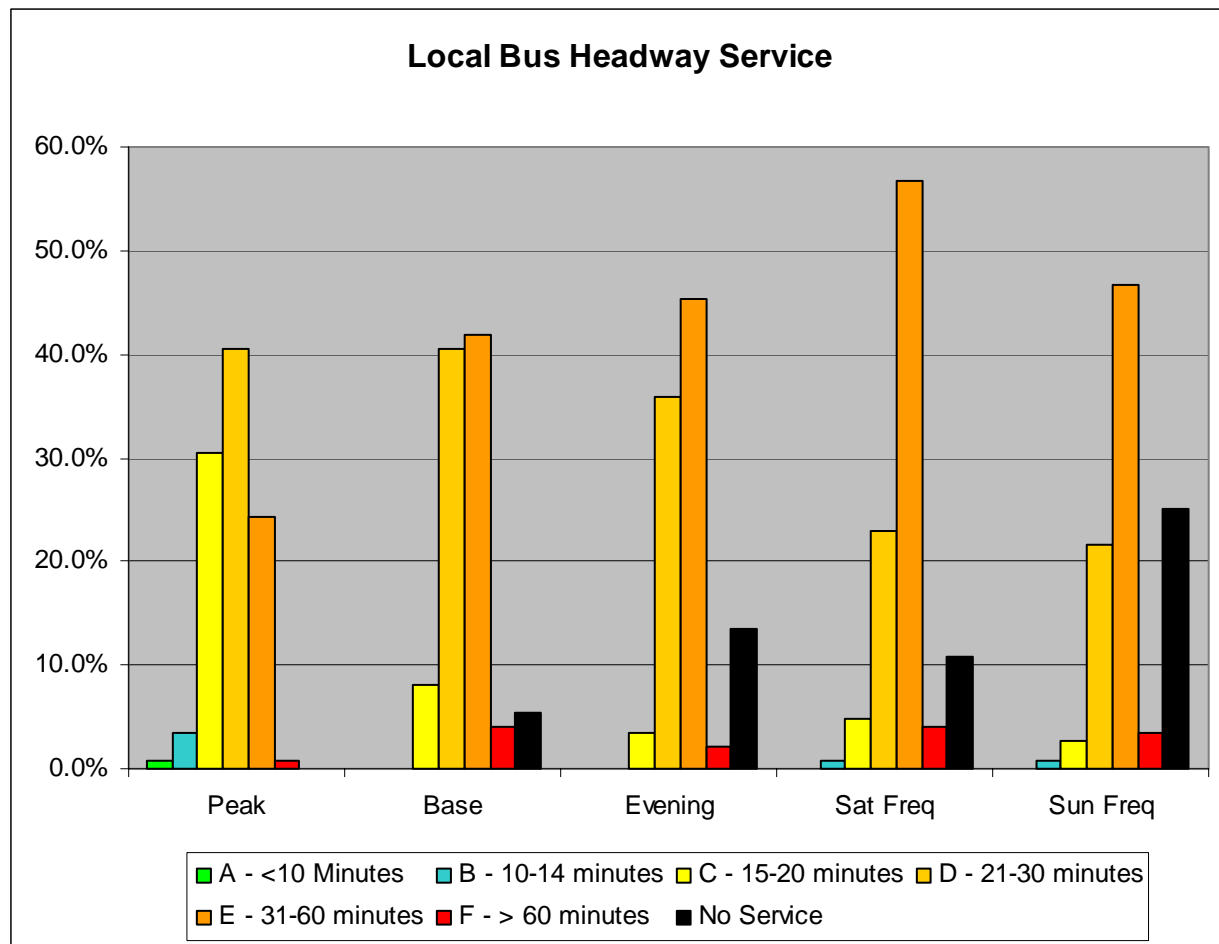


Figure 3 – Chart of Headway LOS for Local Bus Routes

Table 2 and Figure 2 show that less than 5% of routes (5 routes total) in the entire regional local bus network even in the peak hour have headways of less than 15 minutes. No local bus route has headway of less than 15 minutes during the weekday off peak (mid-day and evenings) periods. In fact, figure 2 reveals that outside of the peak period, over 40% of the local bus network operates at headways of greater than 30 minutes. In other words, there is only one bus per hour on these routes. In total, outside of the peak period, there is no time when more than fourteen (14) routes out of total of one-hundred and forty-one (147) local bus routes, operate at headways of 20 minutes or less. For riders, this means that there are only fourteen routes in the entire region where there are more than two buses per hour. According to the Transit Capacity and Quality of Service Manual – 2nd Edition at headways of greater than 20 minutes, bus service is unattractive to choice riders. This means that the Atlanta region's local bus network as currently structured is not attractive for any riders with other options.

However, with the recent December 8, 2007 service changes, MARTA has interlined routes in two locations – along Peachtree Street/Road between Lenox Road and Arts Center Station and

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along Cleveland Avenue between Browns Mill Road and East Point Station – to provide improved overall headways. The result is 10 minutes headways (LOS B) along Cleveland Avenue all day weekdays and 15 minutes (LOS C) on weekends and 10 minute peak headways (LOS B) and 15 minute off-peak and weekend (LOS C) on the common segments along Peachtree Street/Road.

Express Bus

As of January, 2008, there were 37 express bus routes operating within the Atlanta region, three (3) routes operated by Emory, seven (7) operated by CCT, six (6) routes operated by GCT, five (5) routes operated by MARTA (4 Blue-Flyer plus MARTA 143 – Windward P&R), and the final sixteen (16) operated by GRTA.² Express bus routes were defined primarily as those routes that operate from an out-lying Park&Ride lot to a major activity center or transfer station. All of MARTA's Blue-Flyer routes were considered Express Buses because of their limited stop service and differentiated branding. Table 3 shows the number of routes operating at the various Span of Service and Peak and Off-Peak Headway LOS as defined by the Transit Capacity and Quality of Service Manual – 2nd Edition. None of these routes provide service on weekday evenings, Saturdays or Sundays.

Table 3 – Express Bus Span of Service and Headway LOS

	Weekday Span of Service		Peak Hour Headway		Off-Peak Headway	
A – 19-24 hours, <10 minutes	0	0.0%	0	0.0%	0	0.0%
B – 17-18 hours, 10-14 minutes	0	0.0%	1	2.7%	0	0.0%
C – 14-16 hours, 15-20 minutes	8	21.6%	10	27.0%	1	2.7%
D – 12-13 hours, 21-30 minutes	17	45.9%	22	59.5%	1	2.7%
E – 4-11 Hours, 31-60 minutes	12	32.4%	4	10.8%	0	0.0%
F – 0-3 Hours, > 60 minutes	0	0.0%	0	0.0%	3	8.1%
Total Routes in Service	37	100.0%	37	100.0%	5	13.5%
No Service	0	0.0%	0	0.0%	32	86.5%

As expected, most routes provide only peak hour or with a few providing peak hour and mid-day service.³ Additionally, most express buses are operating at headways of 30 minutes or less which are acceptable headways for express bus services. One route, Gwinnett County Transit 103 – Discover Mills to Downtown, is even operating at headways of 10-minutes during the peak hour indicating significant express service demand from Discover Mills area. Overall, the majority of express bus services seem to fall in ranges expected – peak hour services with 20-30 minute headways with some routes even operating at significantly shorter headways.

² The 400 series routes operated under contract to CCT and GCT to GRTA are listed as operated by CCT and GCT.

³ The Transit Capacity and Quality of Service Manual 2nd Edition defines Span of Service for express bus services as hours the bus operates, with service counted as being provided in the mid-day if riders can take a local bus route back to their origin even if the express route itself is not operating.

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Activity Center

Activity Center routes are those routes which provide circulation service within activity centers such as the Buckhead Business Districts, major higher educational institutions and other areas or as shuttle routes between connections to the regional transit system and the activity center. C-TRAN Route 500 which provides service around the Airport Loop road during the weekdays was classified as a circulator primarily because of its loop nature and service around the Airport activity center. An additional thirty-one (31) other routes operated by various other entities were examined for span of service and headway information including the routes operated by Emory, Georgia Tech, Georgia State, BATMA, Cherokee County, the Atlanta University Center/Woodruff Library and the Free Ride (formerly the Atlantic Station Shuttle).

Tables 4 and 5 present circulator Span of Service and Headway LOS respectively.

Table 4 – Circulator Span of Service LOS

	Weekday Span of Service		Saturday Span of service		Sunday Span of service	
A – 19-24 hours, Night service	4	12.5%	1	3.1%	1	3.1%
B – 17-18 hours, Late Evening Service	7	21.9%	0	0.0%	0	0.0%
C – 14-16 hours, Early Evening Service	7	21.9%	1	3.1%	1	3.1%
D – 12-13 hours, Day time Service	3	9.4%	0	0.0%	1	3.1%
E – 4-11 Hours, Peak hours only or limited Mid-day	8	25.0%	7	21.9%	4	12.5%
F – 0-3 Hours, Limited Service	0	0.0%	1	3.1%	0	0.0%
Total Routes in Service	29	90.6%	11	34.4%	7	21.9%
No Service	3	9.4%	21	65.6%	25	78.1%

Table 5 – Circulator Headway LOS⁴

	Weekday						Sat		Sun	
	Peak		Base		Evening		Sat Freq		Sun Freq	
A – <10 minutes	8	25.0%	7	21.9%	2	6.3%	0	0.0%	0	0.0%
B – 10-14 minutes	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
C – 15-20 minutes	6	18.8%	8	25.0%	9	28.1%	4	12.5%	2	6.3%
D – 21-30 minutes	6	18.8%	6	18.8%	5	15.6%	2	6.3%	2	6.3%
E – 31-60 minutes	3	9.4%	1	3.1%	0	0.0%	3	9.4%	1	3.1%
F – >60 minutes	1	3.1%	1	3.1%	0	0.0%	0	0.0%	0	0.0%
Total Routes in Service	26	81.3%	28	87.5%	18	56.3%	11	34.4%	7	21.9%
Routes not in Service	6	18.8%	4	12.5%	14	43.8%	21	65.6%	25	78.1%

Like the fixed routed system, the circulator network is most robust during weekdays, though the circulators do not appear to operate for as long as the local bus routes. An interesting feature of the headways is how frequently many of the circulators operate during the majority of the

⁴ Note – Headway information was not available for certain shuttles. Therefore, the percentages do not add up to 100%. Information will be updated as it becomes available.

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weekday with at least seven routes operating at less than 10 minute headways until the evening. Examining these routes shows them to be all routes operated by Emory, Georgia Tech, or Georgia State. Overall, circulators in the Atlanta region operate most frequently during weekdays with most of those operating having at least two or more trips per hour.

Rail

As of March, 2007 there are four rail lines operating on the heavy rail system in Atlanta:

- North Line – Airport to North Springs
- Northeast Line – Airport to Doraville
- East-West Line – H.E. Holmes to Indian Creek
- Proctor Creek Line – Bankhead to Candler Park/Edgewood

There are also two shared segments. The trunk between Airport and Lindbergh Center is shared by the North and Northeast lines and the trunk between Ashby and Candler Park/Edgewood is shared by the East-West and Proctor Creek lines. All of these routes provide a Span of Service LOS A operating over 20 hours every day and, with the exception of the Proctor Creek Line, over 21 hours every weekday. During the peak hours, these routes operate at 10 minute headways provide LOS B on their branches and LOS A on their shared segments. Mid-day the routes operate at 15-minute headways (LOS C) with 7.5 minutes (LOS A) on their shared trunks. In the evenings LOS C is provided along the entire system since the North and Proctor Creek lines are limited to serving only their specific branches with transfers required to travel further on the system. Weekends, the line East-West and Proctor Creek lines provide 15-minute (LOS C) service with a 7.5 minute (LOS A) headways on the shared segment while the North and Northeast lines provide 20-minute (LOS C) headways with a 10 minute (LOS B) headway on the shared segment.

Changes since October, 2007

There have been several major changes since October, 2007, mostly related to significant changes in MARTA local bus service in South Atlanta, Central Atlanta, and North Atlanta. The following are new routes:

- MARTA 155 – McDaniel Street/Lakewood Avenue
- MARTA 172 – Sylvan Road / Hapeville
- MARTA 178 – Cleveland Avenue / Southside Industrial Park
- Xpress 455 – Union City to Downtown

The increase in Xpress service shows the continued strengthening of the peak-hour transit system towards the major employment centers. The new MARTA routes represent a restructuring of service with the new routes primarily focused on the South Atlanta / East Point area. Additionally, major changes were made to several existing MARTA routes:

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- MARTA 3 – Martin Luther King Junior Drive: Terminating at Five Points Station
- MARTA 4 – Georgia State / Moreland Avenue: Combined with Route 48 – Moreland Avenue
- MARTA 113 – Atlantic Station / Auburn Avenue: Major restructuring to serve Atlantic Station and take over Route 3 segments east of Five Points Station
- MARTA 97 – Georgia Aquarium/Zoo Atlanta: Extended to Civic Center Station
- MARTA 99 – North Avenue / Boulevard: Extended from North Avenue Station to Bankhead Station
- MARTA 148 – Medical Center / Powers Ferry Landing: Restructured to operate all day and serve Medical Center Station
- MARTA 193 – Sylvan Hills: Converted from small bus to regular bus
- MARTA 341 – Windsor Parkway: Converted from regular bus to small bus operation.

The following routes were eliminated on December 8, 2007:

- MARTA 48 – Moreland Avenue
- MARTA 98 – West End / Arts Center
- MARTA 100 – Downtown Tourist Loop
- MARTA 101 – Midtown Tourist Loop
- MARTA 320 – College Park

Two other additional changes occurred during this time period that impacted bus operations. First, the Peachtree Street viaduct reopened allowing bus service to resume along Peachtree Street at Five Points. Secondly, the routes serving North Avenue Station were restructured to eliminate the left-turn out of the station busbay onto North Avenue, instead routing the bus along West Peachtree, 3rd Street, and Juniper Street.

On circulator routes, tracking began of the four shuttle routes operated by the Atlanta University Center linking the AUC, Woodruff library, and several MARTA stations including Vine City, Ashby, and West End.

Overall, no major changes were found for the rail system.

Summary

Overall, the Atlanta region continues to have a regional transit network that operates for much of the day on routes that are running. Local bus routes generally run for much of the day, though a quarter do not operate on Sundays and frequency is usually only once an hour. The express bus routes provide weekday peak hour services primarily on frequencies of half an hour or less. The activity center routes also tend to operate primarily on weekdays, though with a longer span of service than express buses, though shorter than local bus routes. Additionally, activity center routes also tend to operate with at least two or more trips per hour when they are running. The

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rail system provides service throughout the day and well into the late night with LOS A service levels on the trunk lines present throughout much of the morning, afternoon and early evening.